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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/007,328	11/08/2001	Wenhua W. Wang	60153-USA-DIV1	4149

7590 07/12/2004
FMC Corporation
Patent Administrator
1735 Market Street
Philadelphia, PA 19103

EXAMINER

LEVY, NEIL S

ART UNIT	PAPER NUMBER
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1616

DATE MAILED: 07/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/007,328	WANG, WENHUA W.	
	Examiner	Art Unit	
	Neil Levy	1616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 April 0518.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5, 6, 10, 11, 13, 14, 19, 20, 24, 25, 27, 31 are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5, 6, 10, 11, 13, 14, 19, 20, 24, 25, 27, 31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

The final rejection is withdrawn in consequence of an updated search and review of the claims as now amended.

Claim 24 would be allowable, if part (c) were to specify the second agent to be a polyisocyanate. Claim 31 would be allowable; if part (a) would incorporate the claim 25 agents. We understand the last paragraph of claim 31 to mean that part (a) involves adding Hexamethylene diisocyanate, or a oligomer (based on) thereof, then after encapsulating, and adding a Ca salt and heat as in part (b), more Hexamethylene diisocyanate is added, and finally, again, at part (c) another encapsulating agent and isocyanate is added.

Claim 27 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Curtis et al 5462915.

The rejection of record is maintained.

Suspension of solid chemicals in, typically, water then mixed with an encapsulating agents, pre polymers or polymers (col.3, lines 9-21) are utilized as is known in the art, polymerization is effected by changing the PH (col.4, lines 12-29), with the ai, are cation salts of Ca, Cu (col.2, lines 58-61) or (col.3, top Fe, and example 1.1)) thus meeting the instant claimed curing agent. Since addition of ai suspension and prepolymer is repeated (col.2, lines 11-21), the cations are present with the second encapsulating agent. Curing is specifically mentioned as

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heat or PH acid catalysis as conventional (col.5, top) with mild-citric or fumaric *acids*
acetic obvious as mild.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for
all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 6, 10, 11, 13, 14, 19, 20, 24, 25 and 31 are rejected under 35
U.S.C. 103(a) as being unpatentable over Takahashi et al 4557755 in view of
Natske et al WO94/22302 and ~~4~~o-EP 0551790.

Takahashi repares solid active microencapsulates (col.4, lines 48-68) by
dispersion (col. 5, lines 27-30, col.6, 18-63) in aqueous mixture with prepolymer
encapsulating agent of urea for maldehyde and applying heat and acid. The
instant curing agent is present-diamines, water soluble amino resins (col.6, line
20), present as part of the encapsulating material, as is the aldehyde,
formaldehyde (col.6, line 38-col.7, line 48). Magnesium chloride may also be
used (col.7, lines 63-65). The instant process as claimed is disclosed at col.6,
line 18+-The core active is mixed with encapsulating agent, with accordant PH
and heat changes and adding of formaldehyde or other modifier-the instant
chamines or Mg chloride.

The Takahashi microencapsulates are generated to provide desired
degree of active release rate and water/weather resistance (col.3, lines 20-35) by
adjusting coating thickness or toughness (col.5, line 39-line 5, col.6). However,

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natske shows advantages use of coatings of 2 or more layers over microparticles of actives prevents high initial release rates and also provides reduced hazard, and amount of coating material (p.2). Powders of active are combined with polymer or pre-polymer encapsulating agents in aqueous solution or suspension (p.6, I-vii) to precipitate polymer or active, thereby encapsulating, and repeating, thereby providing a second encapsulating agent. Precipitation is effected by changing the PH, or by adding a co-reactant (p.6, bottom). Both inventions utilize urea, formaldehyde. Shells, encapsulate agri actives, and cure, or crosslink with acidification, or heat and crosslinking agents-with aldehydes, (Natshe, top, p.6) or diarmine, cation salts, or aldehydes- Takahashi; thus, the same area of endeavor:

Finally-lo shows the agrichemicals solids (p.4-5), with preferred walls of polyisolyanates (p.5, line 40-p.6, line 58), prepared with diamines from aqueous solution. Also preferred is use of calcium, magnesium salts, with styrene-mleicanhydride surfactant (p.7, top).

The primary reference provides the essence of the instant invention as claimed, but does not specify, identify each and every element of the instantly claimed methods. However, the secondary references directed at the similar same methods to solve the same problem of the primary reference do provide these additional elements.

All the critical elements of the instant invention are disclosed.

The selection of each ingredient is a result effective parameter chosen to obtain the desired effects. It would be obvious to vary the nature of each

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ingredient to optimize the effects desired such as desired number of applications, length of time for desired protection, ease of handling and toxicity, cost, rate of release of active.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made desiring to utilize microencapsulated pesticides, to use Takahashi, modified with Natske to improve release and safety features, with surfactant and pesticides chosen to be compatible encapsulst selected from the urea copolymers or polyisocyanates shown comparable by lo.

Applicant's arguments filed 5/18/04 have been fully considered but they are not persuasive. Applicant has amended, overcoming rejections of record, but updated search and reconsideration reveals the invention as claimed to not be outside the prior art. The first and second polymerizing agents are not claimed as different from each other. The curing agent can in fact be the same as encapsulating agent. Polymerization by precipitating is not seen as different from prior art encapsulation; claim 5 does not specify the means to so precipitate it thus is evident as a polymer art recognized process. The second agent (b) in claim 5 and first, in claim 19, are undesignated, thus seen as within the rationale of the prior art multiple layered processes of using the same encapsulants. The same holds for claims 24 and 31; there is no requirement for the first and second encapsulant to be different. Finally, the claims, although searched as microcapsules, are in fact not drawn to microcapsules, or any particularly sized capsules.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Neil Levy whose telephone number is 571-272-0619. The examiner can normally be reached on T-F from 7:00a.m to 5:30p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman Page, can be reached on 571-272-0602. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Levy/tgd

July 8, 2004



NEIL S. LEVY
PRIMARY EXAMINER